CLAIMS

1. A method of planning a radiation therapy, the method comprising the steps of:

determining a dose distribution for a target volume on the basis of a first image;

determining at least one of shape and position variation of an object of interest in the target volume between the first image and a second image; and

adjusting the dose distribution on the basis of the at least one of shape and position variation;

wherein the first and second images where taken at different points in time of a radiation treatment process.

2. The method of claim 1', further comprising the steps of:

applying a first surface mesh to the object of interest in the first image;

performing a first adaptation of the first surface mesh to a surface of the object of interest in the first image resulting in a second surface mesh;

applying the second surface mesh to the object of interest in the second image;

performing a second adaptation of the second surface mesh to the surface of the object of interest in the second image resulting in a third surface mesh; and

obtaining a difference between the second surface mesh and the third surface mesh.

3. The method of claim 2 further comprising the steps of:

generating a volumetric model of the object of interest on the basis of the second surface mesh; and

deforming the volumetric model on the basis of the difference resulting in a deformed volumetric model.

4. The method of claim 3,

wherein the difference is used as a boundary condition for the deformation of the volumetric model.

5. The method of claim 3,

wherein the at least one of shape and position variation of the object of interest is determined on the basis of the deformed volumetric model.

6. The method of claim 3,

wherein a biomechanical model is taken into account for the deformation of the volumetric model.

7. The method of claim 1, wherein the first and second images are computed tomography (CT) images.

8. A radiation therapy planning device, comprising:

a memory for storing a first image and a second image; and

a processor adapted to perform the steps of:

determining a dose distribution for a target volume on the basis of the first image;

determining at least one of shape and position variation of an object of interest in the target volume between the first image and the second image; and

adjusting the dose distribution on the basis of the at least one of shape and position variation;

wherein the first and second images where taken at different points in time of a radiation treatment process.

9. The radiation therapy planning device of claim 8, wherein the processor is further adapted to perform the steps of

applying a first surface mesh to the object of interest in the first image;

performing a first adaptation of the first surface mesh to a surface of the object of interest in the first image resulting in a second surface mesh;

applying the second surface mesh to the object of interest in the second image;

performing a second adaptation of the second surface mesh to the surface of the object of interest in the second image resulting in a third surface mesh;

obtaining a difference between the second surface mesh and the third surface mesh;

generating a volumetric model of the object of interest on the basis of the second surface mesh; and

deforming the volumetric model on the basis of the difference resulting in a deformed volumetric model.

10. The radiation therapy planning device of claim 9,

wherein the difference is used as a boundary condition for the deformation of the volumetric model; and

wherein a biomechanical model is taken into account for the deformation of the volumetric model.

11. A computer program for a radiation therapy planning device, wherein a processor of the radiation therapy device performs the following operation when the computer program is executed on the processor:

determining a dose distribution for a target volume on the basis of a first image;

applying a first surface mesh to the object of interest in the first image;

performing a first adaptation of the first surface mesh to a surface of the object of interest in the first image resulting in a second surface mesh;

applying the second surface mesh to the object of interest in the second image;

performing a second adaptation of the second surface mesh to the surface of the object of interest in the second image resulting in a third surface mesh;

obtaining a difference between the second surface mesh and the third surface mesh;

generating a volumetric model of the object of interest on the basis of the second surface mesh;

deforming the volumetric model on the basis of the difference resulting in a deformed volumetric model; and

adjusting the dose distribution on the basis of the deformed volumetric model;

wherein the first and second images where taken at different points in time of a radiation treatment process.